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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,961	09/29/2003	Martin Dust	MOH-P010032	3944

24131 7590 09/13/2004  
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EXAMINER
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CHAPMAN JR, JOHN E

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/673,961

Applicant(s)

DUST, MARTIN

Examiner

John E Chapman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6-11,13,15-17,19,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-11,13,15-17,19,21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 7-11, 16, 17 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Harth, III et al.

Harth teaches measuring the thickness of a layer 18 in a vessel 14 using an ultrasonic transducer 40 in contact with an outside diameter surface of the vessel, wherein the vessel may comprise the jacket for fuel rods (col. 4, lines 2-3). The probe 40 may comprise a Panametrics V-214BA ultrasonic transducer (col. 8, lines 42-43), which transducer has a planar surface region. See page 20 of the Panametrics, Inc. transducer catalog.

Regarding claims 2, 11 and 17, the coupling surface would inherently be substantially planar, since the transducer is applied to the vessel in the same manner as disclosed by the applicant.

Regarding claims 7, 10 and 22, Harth teaches operating at a frequency of 100 MHz (col. 4, lines 3-5), which frequency is required for cladding layers whose thickness lies between .08 and 0.1 mm (col. 3, line 66 to col. 4, line 6), which thickness is “approximately 0.15 mm.”

3. Claims 1, 2 and 6-11, 15-17 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harth, III et al. in view of Krautkramer et al.

Harth teaches measuring the thickness of a layer 18 in a vessel 14 using an ultrasonic transducer 40 in contact with an outside diameter surface of the vessel, and teaches that it is

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known in the art to measuring the thickness of the cladding layer of fuel rods (col. 4, lines 2-3).

Accordingly, it would have been obvious in view of the disclosed background to use the apparatus of Harth to measure the thickness of the cladding layer of a fuel rod. The probe 40 appears to have a planar surface region (page 20 of the Panametrics, Inc. transducer catalog), and if not, it would have been obvious in view of Krautkramer to use a probe having a planar surface region. Krautkramer teaches that it is well known in the art to use a flat probe on a cylindrical surface (pages 290-293).

Regarding claims 2, 11 and 17, Krautkramer teaches that the contact face has the shape of a narrow rectangle (pages 290-291).

Regarding claims 6, 15 and 21, Harth teaches operating at a frequency up to 100 MHz (col. 4, lines 3-5), which frequency is required for cladding layers whose thickness lies between .08 and 0.1 mm (col. 3, line 66 to col. 4, line 6). Accordingly, it would have been obvious to measure thickness of tubes having a cladding layer down to .08 and 0.1 mm. In particular, it would have been obvious to measure thickness of tubes having a wall thickness less than 1 mm and a cladding layer between .08 and 0.1 mm.

Regarding claims 7, 10 and 22, it would have been obvious to measure thickness of a cladding layer greater than .08 to 0.1 mm, such as 0.15 mm.

4. Claims 4, 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harth, III, in view of Trulson et al.

The only difference between the claimed invention and the prior art consists in digitally processing the echo signal. Trulson teaches that it is well known in the art to digitally process an

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echo signal to reduce the chance of error and obtain more consistently accurate measurements (col. 1, lines 53-57). Accordingly, it would have been obvious to digitally process the echo signals in Harth in order to reduce the chance of error and obtain more consistently accurate measurements.

5. Claims 4, 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harth, III in view of Krautkramer as applied to claims 1, 8 and 16 above, and further in view of Trulson et al.

The added difference between the claimed invention and the prior art consists in digitally processing the echo signal. Trulson teaches that it is well known in the art to digitally process an echo signal to reduce the chance of error and obtain more consistently accurate measurements (col. 1, lines 53-57). Accordingly, it would have been obvious to digitally process the echo signals in Harth in order to reduce the chance of error and obtain more consistently accurate measurements.

6. Applicant's arguments filed August 11, 2004 have been fully considered but they are not persuasive. Applicant argues that Harth relates to thickness measurement of non-metallurgically bonded cladding on the inside surface of vessels, whereas the invention pertains to the measurement of partial layer thicknesses of thin-walled tubes, particularly, the cladding tubes of fuel rods of a nuclear reactor that has a metallurgically bonded liner layer. Applicant's argument, however, is more specific than the invention claimed, since the claims do not distinguish

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between non-metallurgically bonded cladding and metallurgically bonded cladding. Nor do the claims recite the measurement of a partial layer thickness of a thin-walled tube.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

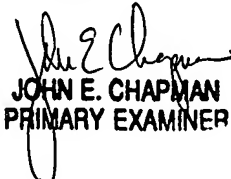
In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Krautkramer is relied upon to teach that it is well known in the art to use a flat probe on a cylindrical surface, and motivation to use a flat probe consists in using a standard technique familiar to one of ordinary skill in the art. Trulson is relied upon to teach that it is well known in the art to digitally process an echo signal, and the motivation to digitally process an echo signal is to reduce the chance of error and obtain more consistently accurate measurements.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John E Chapman whose telephone number is (571) 272-2191. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
JOHN E. CHAPMAN  
PRIMARY EXAMINER